

**REMARKS****I. General**

Claims 1-3, 7, 9-14, and 35-70 were pending in the present application. Applicant notes with appreciation the indication in the current Office Action (mailed July 2, 2004) of claims 63-65 and 69-70 as being allowable. Applicant further notes with appreciation the withdrawal of the restriction requirement and the indication of claims 40-44 and 51 as being allowable if rewritten in independent form. Applicant also appreciates the Examiner's time and consideration in conducting the telephonic interview August 13, 2004, and submits a record of such interview herein below.

The outstanding issues in the current Office Action are:

- Claims 1-3, 7, 9-14, 37-39, 46-48, 52, and 58-62 are rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter and lacking patentable utility; and
- Claims 35-36, 45-50, 53-62, and 66-68 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In response, Applicant respectfully traverses the outstanding claim rejections, and requests reconsideration and withdrawal thereof in light of the amendments and remarks presented herein.

**II. Record of Interview Under 37 C.F.R. § 1.133 and M.P.E.P. § 713.04**

Applicant submits the following record of the telephonic interview of August 13, 2004. The following persons participated in the telephonic interview: Examiner Marjorie Moran, and Applicant's representatives Jody Bishop (registration no. 44,034) and Nicole Sims. All arguments posited in this interview on behalf of Applicant were presented by Jody Bishop, with Nicole Sims merely observing.

The rejections under 35 U.S.C. § 112, second paragraph were first discussed. Applicant's representative noted that claims 45 and 46 were rejected in the current Office Action for their use of the term "best", while the use of the term "best" in independent claim

41 (from which claims 45 and 46 each depend either directly or indirectly) was specifically noted as being proper (*see* page 8 of the current Office Action). Examiner Moran agreed that the rejection of claims 45 and 46 in this regard was improper.

Applicant's representative then argued that the use of the term "best" in claim 35 is sufficiently definite as to comply with the requirements of 35 U.S.C. § 112, second paragraph. Examiner Moran disagreed. In the course of discussing this issue, Examiner Moran explained that the use of the term "best" in claim 35 is indefinite because how such "best" predictor set is determined is not recited. Examiner Moran noted that claim 41 was an example of an acceptably definite claim because it recites a way of determining the best predictor set, i.e., "if determined in step (c) that all of said  $k$  features of said predictor set have been repeated  $k$  times in a row, determining such predictor set as a best predictor set of  $k$  features for predicting said target." No agreement was reached regarding this rejection of claim 35.

Examiner Moran further noted that the same issue was present regarding the usage of "highest" in claims 53-54, 58, and 60-61.

Applicant's representative then argued that the term "incrementing" used in claims 46, 47, 58, and 60 is sufficiently definite as to comply with the requirements of 35 U.S.C. § 112, second paragraph. Examiner Moran disagreed. In the course of discussing this issue, Examiner Moran explained that because there exist several known definitions of the term "incrementing," such as the three definitions included in Webster's definition of "increment" that Applicant submitted in its previous Amendment, Examiner Moran was unsure whether Applicant intended for the term to encompass all of these definitions or only a particular one of the definitions. Applicant's attorney asserted that, as is common with interpreting terms that Applicant has not defined, the term "incrementing" is to be afforded a broad meaning to encompass any known definition. Thus, Applicant submits that Examiner Moran should consider all of the possible definitions known for "incrementing" in examination of the claims that include this term. Applicant's attorney believes that by clarifying that incrementing is not intended to be limited to any given definition, the 35 U.S.C. § 112, second paragraph issues raised by Examiner Moran concerning this term have been resolved.

Examiner Moran further noted that the rejection of claim 35 under 35 U.S.C. § 112, second paragraph for its recitation of “using” is maintained because it is unclear what is meant by “predicting said target”. Thus, Applicant’s attorney clarified that the term “using” in claim 35 is not indefinite, but rather it is the recitation of “predicting said target”. Examiner Moran confirmed that this is correct and explained that it is unclear what is being predicted by the recited “predicting said target”. No agreement was reached on this issue, but Applicant’s attorney agreed to take this explanation by Examiner Moran under advisement in responding to the current Office Action.

The outstanding rejection of claim 1 under 35 U.S.C. § 101 was then discussed. Examiner Moran initially indicated that this rejection stemmed from claim 1 failing to recite elements that clearly arrive at a result. In this regard, Applicant’s representative inquired as to whether recitation of “forming a predictor set for predicting the presence of said target” in claim 1 would resolve this issue, without conceding that the outstanding rejection of claim 1 is proper. Without indicating that Applicant’s suggested amendment would overcome the 35 U.S.C. § 101 rejection, Examiner Moran stated that the suggested amendment would “certainly be helpful” toward overcoming such rejection. No agreement was reached on this issue, and no further issues were discussed.

### **III. Claim Amendments**

Claims 1, 35, 36, 41, 45, 46, 48, 49, 50, 53, 54, 57, 58, 60, 61, 66, and 67 are amended and new claims 71 and 72 are added herein. No new matter is presented by these amendments and newly added claims.

Claim 1 is amended to recite “A method for forming a predictor set of features associated with a target” and to recite “as a result of performing each of steps (a)-(d) at least once, forming a predictor set for predicting the presence of said target.” This amendment to claim 1 is believed to overcome the outstanding 35 U.S.C. § 101 rejection.

Claim 35 is amended to delete the term “best” and to recite “once determined by said checking step that all of said features of a predictor set have been repeated  $k$  consecutive number of times, then said forming step comprises forming a predictor set of the repeated  $k$  number of said features for predicting the presence of said target; and using, for predicting

the presence of said target, the formed predictor set of  $k$  features.” By deleting the reference to the term “best”, this amendment is believed to overcome the outstanding rejection of this claim under 35 U.S.C. § 112, second paragraph.

Claim 36 is amended to refer to the “formed predictor set” rather than the “best predictor set” to ensure proper antecedent basis in view of the above amendment to claim 35.

Claim 41 is amended to recite “predicting the presence of said target”. Claims 45, 46, 48, 49, and 50 each depend either directly or indirectly from claim 41, and such claims are also amended to recite “predicting the presence of said target” for consistency with claim 41.

Claim 53 is likewise amended to recite “predicting the presence of said target”, and claim 57, which depends from claim 53, is also amended to recite “predicting the presence of said target” for consistency with claim 53.

Additionally, claim 53 is amended to delete “wherein said complement feature is a feature that when added to the  $k-1$  subset forms the highest quality set of  $k$  features for predicting said target”. This is not intended as a narrowing amendment, and by deleting the reference to the term “highest”, this amendment is believed to overcome the outstanding rejection of this claim under 35 U.S.C. § 112, second paragraph.

Likewise, claim 54 is amended to delete “wherein the second complement feature is a feature that when added to the  $k-1$  remaining features of the predictor set forms the highest quality set of  $k$  features for predicting said target”. This is not intended as a narrowing amendment, and by deleting the reference to the term “highest”, this amendment is believed to overcome the outstanding rejection of this claim under 35 U.S.C. § 112, second paragraph.

Claim 58 is amended to delete “wherein said complement feature is a feature that when added to the  $k-1$  subset forms the highest quality set of  $k$  features for predicting said target”. This is intended as a broadening amendment. Further, by deleting the reference to the term “highest”, this amendment is believed to overcome the outstanding rejection of this claim under 35 U.S.C. § 112, second paragraph. Additionally, claim 58 is amended to remove “and proceed to step (l)” and the elements previously recited as step “(l)” are now included in step (k). This amendment clarifies that the element previously recited in step (l) is performed if the condition of step (k) is applicable (i.e., if the counter does not equal  $k$ ).

This is intended solely for clarity and is not intended to narrow the scope of claim 58 in any manner.

Claim 60 is amended to recite “predicting presence of said target”, and claim 61, which depends from claim 60, is likewise amended to recite “predicting the presence of said target” for consistency with claim 60. Also, claims 60 and 61 are amended to remove the term “acceptable” therefrom. The deletion of this term is not intended as a narrowing amendment.

Claim 66 is amended to recite “predicting the presence of said target”, and claim 67, which depends from claim 66, is likewise amended to recite “predicting the presence of said target” for consistency with claim 66.

#### **IV. Rejections Under 35 U.S.C. § 101**

Claims 1-3, 7, 9-14, 37-39, 46-48, 52, and 58-62 are rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter and lacking patentable utility. Claim 1 is amended herein to recite “A method for forming a predictor set of features associated with a target” and to recite “as a result of performing each of steps (a)-(d) at least once, forming a predictor set for predicting the presence of said target.” This amendment to claim 1 is believed to overcome the outstanding 35 U.S.C. § 101 rejection. Further, because claims 2-3, 7, 9-14, 37-39, 46-48, and 52 each depend either directly or indirectly from independent claim 1, the outstanding 35 U.S.C. § 101 rejections of those claims are also believed to be overcome by this amendment to claim 1.

Claim 58, as amended herein, is also believed to be proper under 35 U.S.C. § 101. Accordingly, because claim 59 depends from claim 58, such claim 59 is also believed to be proper under 35 U.S.C. § 101.

Claim 60 is believed to be directed to proper statutory subject matter (i.e., a “method”), and is believed to have utility. Therefore, Applicant respectfully requests that the Examiner reconsider the rejection of this claim under 35 U.S.C. § 101. Because claims 61-62 each depend either directly or indirectly from independent claim 61, the outstanding 35 U.S.C. § 101 rejections of those claims are also believed to be improper.

In view of the above, Applicant respectfully requests withdrawal of the outstanding rejections under 35 U.S.C. § 101.

#### **V. Rejections Under 35 U.S.C. § 112, Second Paragraph**

Claims 35-36, 45-50, 53-62, and 66-68 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

##### “Best”

Regarding claims 35 and 36, these claims are rejected based on their use of the term “best”. As described above, these claims are amended to no longer recite the term “best”. Therefore, withdrawal of this rejection is respectfully requested.

Claims 45 and 46 are also rejected for their use of the term “best”. However, agreement was reached in the above-summarized telephonic interview that the rejection of claims 45 and 46 under 35 U.S.C. § 112, second paragraph for such usage of the term “best” was improper and would be withdrawn.

##### “Highest”

Claims 53-54, 58, and 60-61 are rejected based on their use of the term “highest”. As described above, the term “highest” has been deleted from claims 53, 54 and 58, and thus withdrawal of this rejection of those claims is respectfully requested.

Claim 60, as amended herein, recites “wherein said complement feature is one of said  $n$  features that provides the highest quality set of  $k$  features for predicting presence of said target when added to the  $k-1$  subset”. Applicant respectfully submits that this claim, as amended herein, is sufficiently definite under 35 U.S.C. § 112, second paragraph. The term “highest” is used in describing the quality of the set of  $k$  features for predicting the presence of the target when a complement feature is added to the  $k-1$  subset. The specification defines complement at page 6, lines 28-33 as follows:

The term “complement” shall mean a feature (when looking for a predictor set size of  $k$  features it is defined as follows: a feature  $g$  is called a

complement to a given set of  $k-1$  features if no other feature, along with this given set of  $k-1$  features, can form a higher quality set of  $k$  predictors). In the case  $k=2$ , gene  $g^*$  is called a complement to feature  $g$  if the “quality”  $Q(.,.)$  of the couple  $(g, g^*)$  is no worse than that of any couple  $(g, h)$ ;  $Q(g, g^*) \leq Q(g, h)$  for any  $h$ .

Further, the term “quality” is defined by the specification at page 6, lines 16-20 to mean:

the distance between the predictor and the target. The smaller the distance between the predictor and the target the better the quality of prediction. Geometrically, for  $k=2$ , quality is the distance between the target and the plane formed by the two features in the predictor set.

Thus, Applicant believes that the use of “highest” in claim 60 is sufficiently definite to comply the requirements of 35 U.S.C. § 112, second paragraph. Claim 61 depends from claim 60 and its usage of the term “highest” is also believed to be sufficiently definite for the reasons discussed above for claim 60. Accordingly, Applicant respectfully requests that these rejections of claims 60-61 be withdrawn.

#### “Acceptable”

Claims 60-61 are rejected based on their use of the term “acceptable”. As described above, the term “acceptable” has been deleted from claims 60-61, and thus withdrawal of this rejection of those claims is respectfully requested.

#### “Using”

Claims 35, 53, and 66 are rejected based on their use of the term “using”. In the above-summarized interview, the Examiner clarified that the term “using” in these claims is not indefinite, but rather that it is unclear what is being predicted by the recited “predicting said target”. Claim 35 is amended herein to recite “using, for predicting the presence of said target, the formed predictor set of  $k$  features” (emphasis added). Similarly, claim 53 is amended herein to recite “using the determined best predictor set of  $k$  features for predicting the presence of said target” (emphasis added). And, claim 66 is amended herein to recite “using the determined best predictor set of  $k$  features for predicting the presence of said target” (emphasis added). Thus, withdrawal of the outstanding rejection of these claims is respectfully requested.

“Incrementing”

Claims 46, 47, 58, and 60 are rejected based on their use of the term “incrementing” or “incremented”. Applicant believes that this issue has been resolved in view of the above-summarized telephonic interview. As is common with interpreting terms that Applicant has not defined, the term “incrementing” is to be afforded a broad meaning to encompass any known definition. Thus, Applicant respectfully requests that the Examiner consider all of the possible definitions known for “incrementing” in examination of claims 46, 47, 58, and 60. Withdrawal of this rejection of these claims is respectfully requested.

“Immunological information”

Claim 68 is rejected based on its use of the term “immunological information”. The Office Action notes that this phrase is not defined in the specification and it may have many meanings. As is common with interpreting terms that Applicant has not defined, the term “immunological information” is to be afforded a broad meaning to encompass any information that may be considered immunological information. Thus, Applicant respectfully requests that the Examiner consider all of the possible “immunological information” in examination of claim 68. Withdrawal of this rejection of this claim is respectfully requested.

**VI. New Claims 71 and 72**

New claims 71 and 72 are believed to be of patentable merit based at least on their dependencies from independent claims 1 and 58, respectively.



## VII. Conclusion

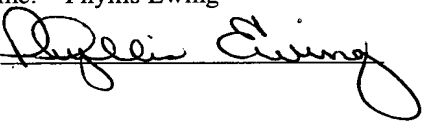
In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

Applicant believes no fee is due with this response. However, if a fee is due, please charge Deposit Account No. 50-1078, under Order No. 10004226-1 from which the undersigned is authorized to draw.

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail, Label No. EV 482737325US in an envelope addressed to: MS Amendment, Commissioner for Patents, Alexandria, VA 22313.

Date of Deposit: August 19, 2004

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